

Hydrologic Model Manager

Short Name	SHETRAN
Long Name	
Description	
Model Type	Physically-based distributed river basin model
Model Objectives	To simulate transient three-dimensional flow and transport in basins up to about 5,000 square kilometers.
Agency Office	Water Resource Systems Research Laboratory, University of New Castle, New Castle upon Tyne, U. K.
Tech Contact	Dr. John Ewen
Model Structure	The model represents a basin as a three-dimensional mesh and the storages and movements of water, sediment and solute are represented by finite difference approximations to the governing conservations for flow and transport.
Interception	
Groundwater	
Snowmelt	
Precipitation	
Evapo-transpiration	
Infiltration	
Model Paramters	Varying depending on the processes to be simulated.
Spatial Scale	Grid size (250 m x 250 m)
Temporal Scale	Continuous
Input Requirements	Hydrometeorologic data, rainfall, soils, basin geomorphology, and land use. Other data depend on particular type of application.
Computer Requirements	PC with windows or a large computer
Model Output	Discharge hydrograph, sediment graph, and solute graph
Parameter Estimatr Model Calibrtn	Parameters are obtained from physical measurements.
Model Testing Verification	Tested on a umber of watersheds in U. K. and other countries.
Model Sensitivity	Not reported
Model Reliabiity	Discussed in short and the model is reported to very reliable.
Model Application	Agri basin (1700 square kilometers) in Italy; Slapton Wood, Devon, in England; Murg basin (75 square kilometers) in Switzerland; and Ellerton Ings, River Dervent, Yorkshire in U. K.
Documentation	Not available in public domain but it can be obtained from Dr. J. Ewen
Other Comments	<p>The model is physically based and can simulate a variety of processes accurately.</p> <p>References:</p> <p>Ewen, J. and Parkin, G., 1996. Validating catchment models for predicting land-use and climate change impacts: 1. Methodology. Journal of Hydrology,</p>

Vol. 175, pp. 5830594.

Ewen, J., Parkin, G and O' Connell, P. E., 2000. SHETRAN: Distributed river basin flow and transport modeling system. Journal of Hydrologic Engineering, ASCE, Vol. 5, pp. 250-258.

Date of Submission	5/11/2001 10:31:09 AM
Developer	
Technical Contact	
Contact Organization	